THE MORTON ARBORETUM

Joy Morton, founder LISLE, ILLINOIS

Bulletin of Popular Information

Volume 35 September, 1960 Number 9

SOME WOODY ORNAMENTALS OF THE RUE FAMILY

The Rue Family, *(Rutaceae)* best known through one of its components, the economically important genus, Citrus, (orange, lemon, grapefruit etc.), comprises in addition approximately 120 other genera many of which include species of value as ornamentals. While predominantly woody and tropical, the family also has representatives in the temperate sections of Europe, Asia and America, many of them plants common in cultivation.

In our area the native Wafer Ash *(Ptelea)* is undoubtedly most familiar, although the Prickly Ash or Toothache Tree *(Zanthoxylum)* is probably just as widely distributed both here and in the Orient. Asia is also the home of a much larger genus, the Phellodendrons or Cork Trees, the lesser known Evodias, the Orixa and the locally unreliable Skimmias, Choisya and Poncirus. The latter is more familiarly known farther south as the Trifoliate or Hardy Orange. Europe is represented by that herbaceous silvery leaved sub-shrub, *Ruta graveolens,* the Rue of the herbalist.

Generous clusters of nickel sized, light green, wafer-like fruit, actually winged samaras surrounding the seeds, are the mark of distinction of the midsummer fruiting Wafer Ash or Hop Tree, *Ptelea trifoliata,* an aromatic shrub or small tree usually found along partially shaded streams and roadsides. In such locations it develops into dense rounded bushes 5 to 15 feet tall displaying the typical three parted foliage of dark green which provides such a perfect background for the pale fruit. This is the combination to which the plant owes most of its decorative value. With the approach of autumn the seed wings change to tan and eventually brown, prolonging the interest well into the winter. There is little ornamental value, however, in the abundant, though inconspicuous greenish flowers making their appearance in June and July in panicled cymes.

The fact that the plant is susceptible to Cottony Maple Scale and Red Spider limits its usefulness in landscaping.

In open lowland woods one is most apt to encounter another native *Rutaceae,* the Prickly Ash or Toothache Tree, *Zanthoxylum americanum,* a much branched upright shrub from 5 to 10 and sometimes 18 feet tall.

Growing in thickets sufficiently thorny to deter the most aggressive passer-by, it forms a most effective barrier. The armament is provided by the straight sharp spines arranged in pairs at the base of the leaves and by the supplementary prickles oftentimes found on the petioles. The alternately compound leaves which are from 3 to 10 inches long consist of 5 to 11 narrow to broadly ovate leaflets set oppositely in pairs along the rachis on very short petioles. Flowering occurs before the foliage expands, the small greenish-white blooms appearing in short umbels in the leaf axils on the branches of the previous season. In August and September the fruit matures, shiny black seeds in strongly aromatic capsules about one eighth of an inch long. For that matter, all parts of the plant are pungently scented.

Now that the quest for easily maintained shade and street trees has become more intensified, the aromatic Cork Trees are due to receive the recognition they have so long deserved. One of the best is *Phellodendron amurense,* the Amur Cork Tree from Northern China and Manchuria, a rounded species of rugged, open appearance with a short trunk and thick widespreading branches. It is of medium height (40 ft.) and moderate growth, with loose, dark green compound foliage furnishing shade which though light is adequate. The autumn color is clear yellow, pleasing even though short lived. Among other attractions may be mentioned the clustered berries, olive green at first (late August) turning black as they ripen and the deeply furrowed, corky bark of brownish gray. There is little landscape interest in the small whitish flowers preceding the fruit in June. It should be noted that all Phellodendrons bear the staminate and pistillate flowers on separate trees.

Much more spectacular in fruit is a plant the Arboretum received in 1922 under the name, *Phellodendron chinense glabriusculum.* A lower growing tree (30-35 ft.), also short trunked, but not as wide spreading, it is distinctive because of the larger (½ in. diameter) extremely decorative berries. Although most attractive in the olive green stage, the fruit's individuality is retained even after ripening. The fruit clings into the winter but remains untouched by birds until little else is available. The broader proportioned leaflets are ovate lanceolate in shape and dull surfaced like *P. japonica.* Pubescence is confined to the midrib and veins of the lower leaf surfaces. Like other members of the family the compound leaves are oppositely arranged with the buds enclosed by the base of the petiole.

Other Phellodendrons in our collection, while differing in certain botanical characteristics, are no better than *P. amurense. Phellodendron lavallei,* a dark leaved species from Central Japan is supposed to grow taller, and thin barked *P. sachalinense* to show a tendency toward a more uniform vase shape.

Being fibrous rooted the Cork Trees all move readily, with spring the preferred transplanting season.

One reason for reporting on the woody *Rutaceae* at this time was to call special attention to the Evodias, a lesser known genus of aromatic leaved, unisexual small trees and shrubs, two species of which have been or are currently the center of interest in the Arboretum.

The Hupeh Evodia, *Evodia hupehensis* Dode, unusual small tree from Central China.

The earliest of these to flower is the Korean Evodia, *Evodia daniellii,* a semi-arborescent rounded shrub or small tree (to 25 ft.) whose small four or five parted flowers of creamy white appearing in early August provide interest during that period of scarce bloom. Insignificant both in size and color, they are noticeable chiefly because of their arrangement in flattened compound umbels 6 inches across, and by reason of their distinctive fragrance. It is the latter feature, incidentally, to which the genus owes its name, the Greek "euodia" meaning pleasant odor. Bees find the blossoms irresistible. By early September the fruits have begun to color, continuing the interest started by the floral show. At first rose pink and pale yellow, they undergo a color transition during the ripening process which ranges through red and eventually glossy black. Closer examination will reveal the fruit to consist of 4 to 5 small, 2 valved pods each containing shiny black seeds the size of gun shot and ending in a short, usually hooked beak. The beak size is a point of distinction between this and the Hupeh Evodia.

Opposite, odd-pinnate leaves are characteristic of the genus with the winter buds freely exposed in the leaf axils (in the Phellodendrons the buds are hidden in the base of the leaf stalk). Korean Evodia leaves range from 9 to 15 inches in length and are made up of 7 to 11 subsessile or short stalked leaflets ovate to oblong ovate in shape with finely toothed margins and long tapering tips. They are yellow green in color, smooth on their upper surfaces and downy on the midrib and veins beneath. The branchlets upon which they are borne are pubescent at first, becoming reddish brown the second year with prominent lenticels.

While not a new plant, having been introduced to the Arnold Arboretum in 1905 from Korea and Northern China, this Evodia has remained in the comparative obscurity of botanical collections. Inasmuch as the plant has proved hardy and adaptable, however, there would seem to be no logical reason why its summer flowers and autumn fruit should not be made available for more to enjoy.

Later appearing flowers and fruit justify mention of another species, *Evodia hupehensis,* the Hupeh Evodia from Central China, a tree E. H. Wilson introduced in 1907. Taller growing than the Korean form, it is said to reach 60 ft. in its native habitat, a height to our knowledge not attained in the U.S. Our specimens are not much over 15 ft. tall and 20 wide, low headed, smooth barked, multi-trunked trees whose horizontal branches rather suggest flowering dogwood. Handsome compound foliage is one of this plant's commendable features, being of good medium green coloring and borne in a semi-drooping position. Each leaf consists of 5 to 9 smooth leaflets 2½ to 5 inches long with dark upper surfaces, lighter lower ones, slender tips and shallowly toothed margins. They are attached to the petiole by short stalks.

Quarter-inch ivory colored flowers in broad pyramidal panicles 4 to 8 inches across reach full bloom in mid-August, providing a showy off-season floral display. As is true of the Korean Evodia, bees are attracted to them in numbers. The fruit following in September is even more spectacular, consisting of small reddish brown pods in groups of 4 or 5. Their beaked

tips are longer than those of *E daniellii,* an important point of distinction between the two. The seeds enclosed within them are black.

Not difficult to grow, all the Evodias require is a good, well drained soil and a sunny location.

Still another unfamiliar member of the Rue Family is the Japanese Orixa, *Orixa japonica.* And, anyone coming into contact with it for the first time is sure to be impressed by its exotic appearance, the boldness and luxuriance of its lustrous yellow-green foliage and the imposing stature of the bush itself.

Plainly an alien, for it was introduced from China and Japan in 1870, there is about it a quality not found in any of our native shrubs. For this reason it would seem most appropriate for specimen planting, either as an accent in a border or perhaps along a foundation or wall in combination with dark needled conifers or some of the more adaptable broad-leaved evergreens. Although of slow growth, it ultimately reaches a height of 6 ft. or so, developing into a shapely, spreading branched shrub.

Inasmuch as its flowers and fruit often escape notice under cultivation, attention is focused on the alternately arranged leaves varying from 5 to 6 inches in length and up to 3 in width. They are obovate or oblanceolate in shape with entire margins and deeply impressed veins, and when crushed give off a pleasing aromatic fragrance. The unisexual flowers are said to be inconspicuous and the fruits are described as being brown in color and consisting of four, 2 valved carpels each containing a black seed. When ripe the latter are forcibly emitted in the manner of the annual Balsam.

The fact that Orixa has been a part of the Arboretum collection since 1922 attests to its hardiness.

E. L. Kammerer

Trustees: Sterling Morton, Chairman; Wirt Morton; Suzette Morton Zurcher; Daniel Peterkin, Jr.; Garfield King; E. H. Baker, Jr.; C. J. Adams; Laurence A. Carton; Frederick C. Pullman

Staff: Clarence E. Godshalk, Director; Lowell Kammerer, Curator of Collections; Mrs. Raymond Watts, Naturalist; Roy M. Nordine, Propagator; Walter E. Eickhorst, Assistant Curator of Collections; Anthony Tyznik, Director's Assistant; Webster R. Crowley, Jr., Research Technician; Raymond Schulenberg, Assistant Propagator; Mrs. Roger J. Naser, Secretary

Published monthly by The Morton Arboretum, Lisle, Ill. Subscription $1.00 a year; single copies 10c; double copies 20c